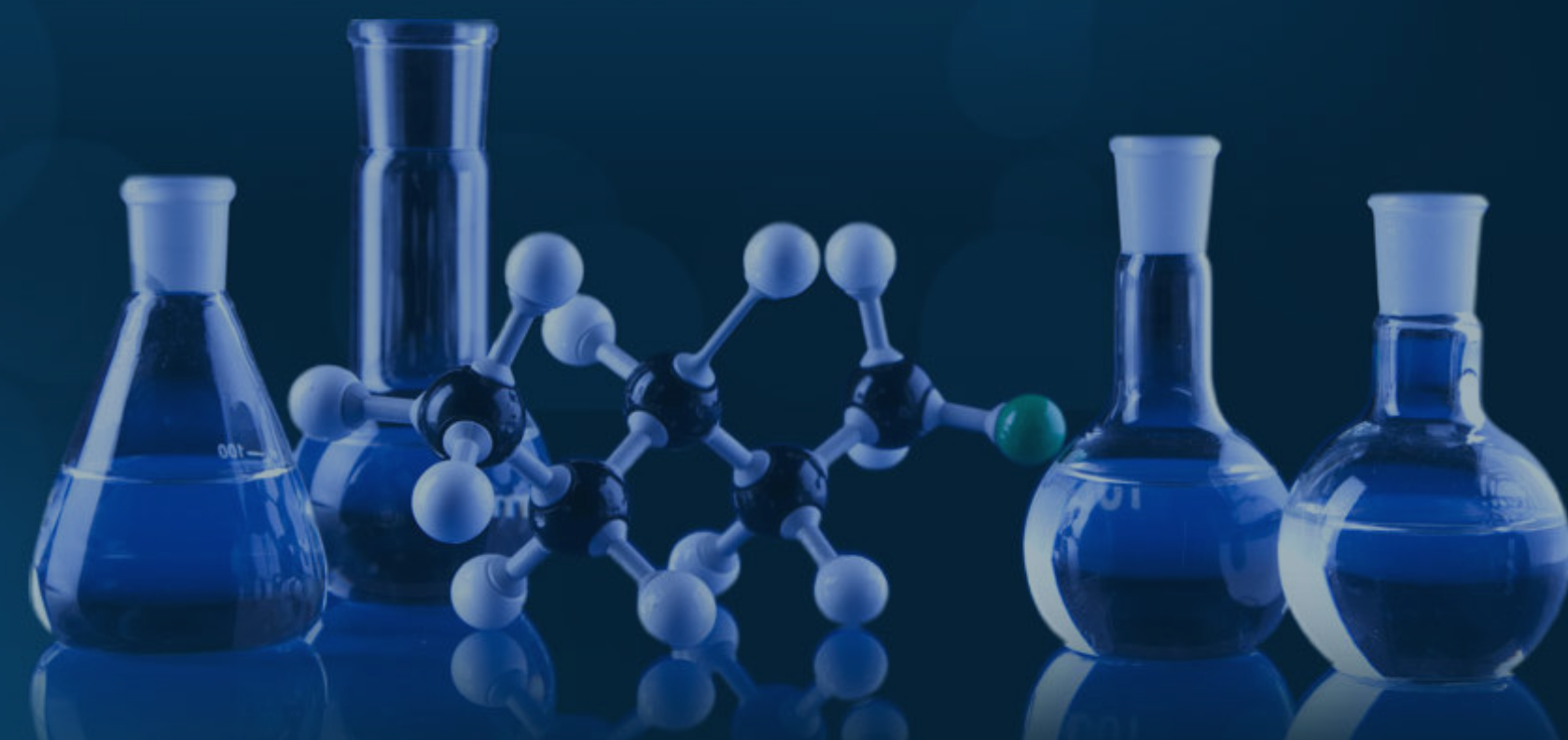




## ARL is an Authority on Nutrition and the Science of Balancing Body Chemistry Through Hair Tissue Mineral Analysis!

Hair Tissue Mineral Analysis


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# Phosphorus Readings

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## The Meaning of Hair Phosphorus Readings

The phosphorus reading on a hair mineral test may provide much information about diet, digestion, absorption as well as synthesis of protein in the body. This reading may also provide clues about zinc metabolism, energy production and the presence of hidden toxic metals.

### Causes Of Low Phosphorus

A low hair phosphorus reading may be related to any one or a combination of the following:

- Low dietary protein intake.
- Impaired protein digestion.
- Impaired protein synthesis.
- Zinc deficiency or excessive toxic metals.
- Overall nutritional deficiencies.

### Diet And Phosphorus Readings

Phosphorus is found primarily in protein foods. These include meats, eggs, dairy, nuts, seeds and beans. Grains and soft drinks also contain a fair amount of phosphorus.

People on low-protein diets often have impaired protein synthesis and low hair phosphorus levels. This is a very common occurrence.

Vegetarians often have imbalanced phosphorus levels. Many of them are on low-protein diets. Vegetarians may also have impaired phosphorus levels because they have low levels of zinc in their diets and in their bodies.

While adequate protein tends to improve phosphorus readings, a diet that is simply high in phosphorus, such as a grain diet or consuming soda pop, does not produce a normal phosphorus reading.

### Digestion And Absorption

Impaired digestion or absorption of protein may contribute to low hair phosphorus readings. Thus, an imbalanced phosphorus reading may indicate digestive stress and a need for digestive enzymes. In particular, betaine hydrochloride and pepsin or other protease enzymes may be helpful to facilitate protein digestion.

Improper intestinal flora such as the presence of candida albicans may impair amino acid absorption. Stress, intestinal diseases such as sprue, general nutritional depletion, spinal misalignment and any other factor affecting digestion and absorption of protein may affect the phosphorus reading on a hair analysis.

### Protein Synthesis

Research by Dr. Paul C. Eck indicated that the phosphorus reading is a measure of protein synthesis within the body. This is the building up of new tissue in the body. A low phosphorus reading may indicate inadequate tissue repair, impaired healing and/or a catabolic state.

Protein synthesis involves a number of steps. Dietary protein must be broken down into amino acids in the stomach and small intestines. The amino acids must be absorbed and carried to the liver. In the liver, amino acids are joined together and transformed to form thousands of enzymes, hormones and other proteins needed for our existence. A blockage at any step along the path of protein metabolism may affect the phosphorus reading on a hair mineral test. Energy production also depends upon phosphorus compounds such as ATP.

### The Importance Of Zinc

Zinc is required for the production of digestive enzymes and for the synthesis of all proteins in the body.

Zinc is needed for the critical enzyme, RNA transferase. This enzyme is essential for all protein synthesis in the body. The enzyme is needed to produce the DNA template from which proteins are made in the body.

Whenever a low phosphorus reading is present on a hair analysis, one should always suspect a zinc imbalance as a possible cause. At times, this is obvious because the zinc reading will be low, however, the zinc level may also be normal or elevated. An elevated zinc often indicates a loss of zinc.

Even if the zinc level is in the normal range, a toxic metal such as cadmium or copper may be displacing the zinc reading upward, making it appear normal.

Any factor that depletes zinc such as stress, or interferes with zinc such as toxic metals, may affect the phosphorus reading.

### Elevated Phosphorus

An elevated phosphorus reading may have several causes:

- Pubic hair samples often show elevated phosphorus readings. This is a characteristic of pubic hair. It is one reason we do not recommend the use of pubic hair as a first choice for a hair analysis.
- An elevated reading may indicate severe tissue breakdown. This is a catabolic state that is not healthful. A low sodium-to-potassium ratio may also be present as a confirmation.
- The phosphorus level may rise transiently if the body is eliminating heavy metals or some other toxin. This is tissue breakdown, but is not pathological. It is part of a healing process.
  - In this instance, the elevated phosphorus is temporary. The level will return to normal when the healing process is over. Such an elevation might be seen, for example, on a retest when the body is eliminating poisons and going through metabolic changes.
- Environmental contamination of the hair sample with phosphorus is possible, but rare in our experience. Shampoos and other hair products generally do not contain high amounts of phosphorus. Occupational exposure is possible, but very rare. In our experience, a high-phosphorus diet alone will not cause an elevated hair phosphorus reading.

### Summary

When a hair phosphorus level is out of the normal range, check for:

- A protein-deficient diet.
- Impaired digestion, absorption or utilization of protein.
- Zinc imbalance.
- Overt or hidden toxicity with copper, cadmium or other toxic metals.
- Tissue catabolism or breakdown, either due to a disease process or as part of a healing reaction.

Correcting these imbalances will often cause the phosphorus reading to improve.

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